UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
LONG, ANDREA NATAE

ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
12/10/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2008*.

2a)☒ This action is **FINAL**.　　　2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
　　 closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,19 and 23* is/are pending in the application.

　　 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17, 19 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　 a)☐ All　b)☐ Some * c)☐ None of:

　　　 1.☐ Certified copies of the priority documents have been received.

　　　 2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　 3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　　　 application from the International Bureau (PCT Rule 17.2(a)).

　　 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　 Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　 Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

FINAL ACTION

Applicant's Response

In Applicant's Response dated 9/15/2008, Applicant amended claims 1, 9, 12, 16, 17, and

19, added claims 23, cancelled claims 18, 20, and 22, and argued against all objections and

rejections previously set forth in the Office Action dated 06/13/2008.

Based on the amendments to claims, the rejections of claim 1 under 35 U.S.C. 112,

second paragraph, for those claims previously set forth is withdrawn.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
requirements of this title.

Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed

to non-statutory subject matter.

Claims 1 and 12 are considered software per se. Computer programs may be explicitly

claimed as, for example, a series of code or instructions for performing functions or may be

implicitly claimed as, for example, a system, a module or an apparatus. Where there is no

evidence in the specification that a means which may be interpreted as software, hardware or

combinations thereof necessarily includes hardware, it will be interpreted in its broadest

reasonable sense as a software means, which is the case here.

Thus a claim to functional descriptive material, including computer programs, per se, is

not patent eligible subject matter.   Claims 2-11 and 13 are rejected as inheriting the deficiencies

of the independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
sale in this country, more than one year prior to the date of application for patent in the United States.

*For the convenience of the Applicant, the Examiner has pointed out particular references
contained in the prior art(s) of record in the body of this action. Although the specified citations
are representations of the teachings in the art and are applied to the specific limitations within
the individual claim, other passages and figures may apply as well.   The Applicant should
consider the entire reference(s) as applicable as to the limitations of the claims.*

Claims 12, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by

Kohonen et al (Self Organization of a Massive Document Collection, 2000), hereinafter

"Kohonen".

As to independent claim 12, Kohonen teaches an information storage system in which

information items are processed so as to map to respective nodes in an array of nodes by mutual

similarity of the information items, such that similar information items map to nodes at similar

positions in the array of nodes to form a self-organizing map, the system comprising:

a generator configured to generate a feature vector derived from each information item

of the self-organizing map, the feature vector for an information item representing a set of

frequencies of occurrence, within that information item, of each of a group of information

features (page 576, section A → Kohonen teaches documents that are represented as vectors in

which each component corresponds to the frequency of occurrence of a particular word in the

document); and

mapping logic configured to map each feature vector to a node in the self organizing

map, the mapping between information items and nodes in the array including a dither

component configured to display nodes that have substantially identical information items at

different locations in a display are to visibly distinguish the nodes having substantially identical

information items (Fig. 6, page 574, section B → Kohonen teaches classical methods of

mapping data items and Fig. 6 teaches items closely spaced but in different areas of the

display),

wherein the dither component is a random addition to a node position of up to a half of a

separation between adjacent nodes (Fig. 6).

As to independent claim 16, claim 16 incorporates substantially similar subject matter

as claimed in claim 12 and is rejected along the same rationale.

As to dependent claim 19, Kohonen teaches a computer readable medium having

program code recorded thereon, the program code configured to carry out a method according

to claim 16 when executed on a computer (page 575 → Kohonen teaches that his group

developed software for the method and that the system operates in real time on in fits medium

sized computers).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1, 2, 5, 10, 11, 14, 15, 17, and 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over John Sharp (WO 02/27508 A1), hereinafter "Sharp" in view of

Alahakoon et al. (Dynamic Self-Organizing Maps with Controlled Growth for Knowledge

Discovery, May 2000), hereinafter "Alahakoon".

As for independent claim 1, Sharp teaches an information retrieval system in which a

set of distinct information items map to respective nodes in an array of nodes by mutual

similarity of said information items, so that similar information items map to nodes at similar

positions in said array of nodes to form a self-organizing map, said system comprising:

(i) a graphical user interface configured to display a representation of nodes of the self

organizing map as a two-dimensional display array of display points within a display area on a

user display (page 3 lines 23-24, page 4 lines 1-3, Fig. 2 → Sharp teaches a GUI for displaying

a collection of data items in a x-y coordinate system to a user to interact with);

(ii) a user control configured to define a two-dimensional region of said display area

(page 3 lines 6-8 → Sharp teaches a GUI generator that controls the display of results set on an

axis);

(iii) a detector configured to detect those display points lying within said two-dimensional region of said display area (page 3 lines 6-13 → Sharp teaches a GUI generator which includes a zooming tool and a marquee tool for providing additional functions for a user to manipulate the data items and select the data items); and wherein said graphical user interface is further configured to concurrently display a list of data representing information items, being those information items mapped onto said nodes corresponding to display points displayed within said two-dimensional region of said display area (page 3 lines 11-17 → Sharp teaches wherein data items can be displayed in a collection bin as thumbnails, the thumbnails representing an individual item).

It is noted that while Sharp does not explicitly teach a self-organizing map, the common uses and function of a self-organizing map can be reasonably interpreted as the same as the system and method of Sharp. Sharp does not teach wherein the graphical user interface concurrently displays a list of data items representing information items with the representation of the nodes in the two-dimensional display. A person of ordinary skill in the art, upon reading the system of Sharp, would also have recognized the desirability to improve the system of displaying the list concurrently with the nodes. Display both the list and node concurrently would allow the user have multiple options for identifying information while eliminating the step of navigating back and forth through multiple screens to obtain the information. Sharp fails to teach a comparator configures to compute a quantization error of a newly received information item and comparing the error to the organized map, and configured to retrain the organized map when the quantization error is above a predetermined threshold.

Alahakoon teaches computing a quantization error of a newly received information item and comparing the quantization error to the self organizing map, and configured to retrain the self organizing map when the quantization error is above a predetermined threshold (pages 603-605 – taught as the growing phase and new node generation).

It would have been obvious to one skilled in the art at the time the invention was made to have incorporated the adding of new information to display of Alahakoon with the mapping of information items of Sharp, to allow for favorable extracting of meaningful data, by breaking down data into smaller pieces, which taken separately would be easier to understand and solve while allowing for appropriate mapping for node that are to close to each other.

As for dependent claim 2, Sharp teaches in which said information items are mapped to nodes in said array on the basis of a feature vector derived from each information item (page 7 lines 12-23 → Sharp teaches that the data items are plotted by qualitative attributes that represent properties of each data item. Examiner notes, that qualitative attributes are analogous with feature vector).

As to dependent claim 5, Sharp teaches in which said information items comprise textual information, said nodes being mapped by mutual similarity of at least a part of said textual information (page 8 lines 3-24 → Sharp teaches data items being plotted according to keyword and qualitative attributes).

As to dependent claim 10, Sharp teaches a user control configures to choose one or more information items from said list; and wherein said graphical user interface is further configured to alter said manner of display within said display area of display points corresponding to selected information items (page 3 lines 6-13 → Sharp teaches a GUI generator which includes a zooming tool and a marquee tool for providing additional functions for a user to manipulate the data items and select the data items).

As to dependent claim 11, Sharp teaches in which said graphical user interface is operable to display in a different colour and/or intensity those display points corresponding to a results list (page 4 lines 7-9, page 12 lines 14-21). Sharp additionally teaches choosing one or more information items from said list (page 3 lines 6-13). While Sharp does not forcefully teach changing the color or intensity of display points when a user selects it from a list, it would have been obvious to one skilled in the art at the time the invention was made to have included this feature in the system to allow for increased visual enhancement of items that are of interest of a user.

As to dependent claim 14, Sharp teaches a data processing device comprising the information system (page 6 lines 1-5, "personal computer"). While Sharp does not forcefully disclose a portable data processing device, it is reasonable for one skilled in the art to have implemented the system on a portable device such as a laptop computer, that embodies the same capabilities of that of a personal computer, for a user's convenience.

As to dependent claim 15, Sharp teaches a processing apparatus comprising a system according to claim 1 (page 6 lines 1-5, "personal computer").

As to independent claim 17, claim 17 incorporates substantially similar subject matter as claimed in claim 1 and is rejected along the same rationale.

As to dependent claim 23, Sharp teaches a computer readable medium having program code recorded thereon, the program code configured to carry out a method according claim 17 when executed on a computer (page 5 lines 26-28 → Sharp teaches wherein software facilitates the method of the invention).

Claims 3, 4, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp in view Alahakoon in further view of Kohonen.

As for dependent claim 3, Sharp teaches qualitative attributes "feature vector" that represent properties of data items.

However, Sharp does not teach wherein the "feature vector' represents frequencies of occurrence.

Kohonen teaches a feature vector for an information item represents a set of frequencies of occurrence, within that information item, of each of a group of information features (page 576, section A → Kohonen teaches where documents are represented as vectors in which each component corresponds to the frequency of occurrence of a particular word in a document).

It would have been obvious to one skilled in the art at the time the invention was made to have combined the qualitative attributes of Sharp with the representation of frequencies of occurrence of a word in a document of Kohonen to reflect the significance or power of a document amongst other documents.

As to dependent claim 4, Sharp teaches in which said information items comprise textual information (page 8 lines 3-8 → Sharp teaches that the data items include keywords, for text-based content searches). Sharp additionally teaches qualitative attributes "feature vector" that represent properties of data items.

Sharp does not teach feature vector represents a set of frequencies of occurrence.

Kohonen teaches a feature vector for an information item represents a set of frequencies of occurrence, within that information item, of each of a group of words (page 576, section A → Kohonen teaches where documents are represented as vectors in which each component corresponds to the frequency of occurrence of a particular word in a document).

It would have been obvious to one skilled in the art at the time the invention was made to have combined the qualitative attributes of Sharp with the representation of frequencies of occurrence of a word in a document of Kohonen to reflect the significance or power of a document amongst other documents.

As to dependent claim 6, Sharp teaches data items including textual information.

Sharp does not teach in which information items are pre-processed for mapping by use of a threshold frequency.

Kohonen teaches in which said information items are pre-processed for mapping by excluding words occurring with less than a threshold frequency amongst said set of information items (page 581, section A → Kohonen teaches words occurring less than 50 time in the whole corpus, as well as a set of common words in a stopword list of 1335 words were removed). It is reasonable for one skilled in the art to include that the pre-processing for mapping may also exclude words occurring with more that a threshold, to reduce the redundancy of unwanted words when extracting relevant terms.

It would have been obvious to one skilled in the art at the time the invention was made to have combines the textual information of Sharp with the pre-processing of Kohonen to add value to text retrieval.

As to dependent claim 7, Sharp teaches data items including textual information.

Sharp does not teach in which information items are pre-processed for mapping by use of a threshold frequency.

Kohonen teaches in which said information items are pre-processed for mapping by excluding words occurring with less than a threshold frequency amongst said set of information items (page 581, section A → Kohonen teaches words occurring less than 50 time in the whole corpus, as well as a set of common words in a stopword list of 1335 words were removed).

It would have been obvious to one skilled in the art at the time the invention was made to have combines the textual information of Sharp with the pre-processing of Kohonen to add value to text retrieval.

As to dependent claim 8, Sharp teaches (i) search logic configured to carry out a word-related search of said information items (page 8 lines 3-8 → Sharp teaches that users can search data items that contain entered keywords); wherein said search logic and said graphical user interface is arranged to co-operate so that only those display points corresponding to information items selected by said search are displayed (page 8 lines 3-24 → Sharp teaches that representations of the results of the keyword search in addition to the qualitative attributes are displayed to the user).

As to dependent claim 9, Sharp teaches the system of claim 1.

However, Sharp does not explicitly teach a dither component for spacing identical information items.

Kohonen teaches a dither component configured to display nodes that have substantially identical information items at different locations in a display area to visibly distinguish the nodes having substantially identical information and the dither component being a random addition to a node position of up to a half of a separation between adjacent nodes (page 574, section B, Fig. 6 → Kohonen teaches that basis projection methods can be used to organize data items).

It would have been obvious to one skilled in the art at the time the invention was made to have combined the system of Sharp with the dithering component of Kohonen to provide a visually enriched representation of data items within a large collection of data items.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohonen in view of Alahakoon.

As to dependent claim 13, Kohonen teaches a storage system for mapping information items to nodes in an array of nodes. Kohonen also teaches logic configured to map a newly received information item to a node in the array of nodes (page 574, section B → Kohonen teaches new input items can be mapped straight into the most similar models).

Kohonen does not teach a mapping error detector and detection error for a remapping process.

Alahakoon teaches responsive to a detection that the mapping error exceeds a threshold error amount, configures to initiate a remapping process of the set of information items and the newly received information item (pages 603-605 – taught as the growing phase and new node generation).

It would have been obvious to one skilled in the art at the time the invention was made to have incorporated the adding of new information to display of Alahakoon with the mapping of information items of Kohonen, to allow for favorable extracting of meaningful data, by breaking down data into smaller pieces, which taken separately would be easier to understand and solve while allowing for appropriate mapping for node that are to close to each other.

Response to Arguments

Applicant's arguments filed 09/15/2008 have been fully considered but they are not persuasive.

Applicant asserts that Alahakoon fails to teach a comparator configured to retrain the organized map when the quantization error is above a predetermined threshold as required by claim 1.

The Examiner disagrees.

Alahakoon discloses that the growth threshold will act as a threshold value for initiating node generation. Additionally that the error value calculated for each node can be considered as a quantization error and the total quantization error would be where the number of neurons in the network and the error value for the neuron. The total quantization error is used as a measure of determining when to generate a new neuron, which would retrain the map to include the new neuron, based upon the quantization error. Therefore Alahakoon reasonably teaches a comparator configured to retrain the organized map when the quantization error is above a predetermined threshold.

Applicant asserts that Kohonen fails to teach a dither component configured to display nodes that have substantially identical or identical information items at different locations in a display area to visibly distinguish the nodes, wherein the dither component is a random addition to a node position of up to a half of a separation between adjacent nodes.

The Examiner disagrees.

As stated in the previous action Kohonen teaches the different aspects of the topic may be found within different clusters or areas of the map. By looking an the enlarging of a cluster of map information items in Figure 6, it shows that while the cluster looks to be mapped to one node, the cluster is formed due to the related information of the items and is therefore clustered together, however each item is still individually mapped to an individual node. It is also noted that the additional clusters on the map also were generated due to the keyword search, therefore the clusters in itself are substantially identical and are mapped in different regions of the map.

Additionally the current claim language "wherein the dither component is a random addition to a node position *of up to a half* of a separation between adjacent nodes would encompass any position located between two nodes, depending on the focus for the starting point of the two adjacent nodes, for which Kohonen teaches with Figure 6.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea N. Long whose telephone number is 571-270-1055. The examiner can normally be reached on Mon - Thurs 6:00 am to 3:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on 571-272-4137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrea Long
December 1, 2008

/Rachna S Desai/

Primary Examiner, Art Unit 2176